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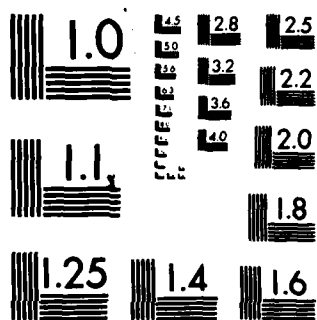
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THE 18TH INTERNATIONAL SYMPOSIUM ON
APPLIED MILITARY PSYCHOLOGY

N.A. BOND

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THE 18TH INTERNATIONAL SYMPOSIUM ON APPLIED MILITARY PSYCHOLOGY

The 18th International Symposium on Applied Military Psychology (IAMPS) enjoyed good representation from a dozen countries doing significant research and applications in military psychology. The 31 attendees at the meeting, held in London from 21 through 25 June 1982, heard progress reports about work in areas that traditionally engage military psychologists. There were discussions of new computer techniques in personnel and training, demonstrations, and informal evening "rump sessions" devoted to special topics such as drug use and delinquent behavior in military people. For the first time in some years, major military conflicts (in the Falklands and Lebanon) were being fought during IAMPS, and the operations gave a sense of immediacy to the symposium. For instance, at the time of the meeting it was already clear that the readiness, competence, and motivation of British military personnel were decisive factors in their success during the Falklands war.

The program had five themes, one for each day of the meeting: stress research and management, administrative and management issues, women in the armed forces, information processing, and selection and prediction. Fortunately, the discussions often deviated from the "theme of the day," and there was some rescheduling. This report will examine each theme and assess the state of that area of military psychology.

Stress Research and Management

F.H. Montesi (Italy), a flight surgeon, led off with a summary of work at the Aerospace Medical Center in Rome. Montesi noted that for some time his center has cross-validated selection and other techniques that have been tried in other aerospace laboratories. Among the techniques are the correlation of mental workload and "mental strain" with heart rate and other physiological measures (for a brief account of British and Dutch work in the area, see ESN 36-11: 277 [1982]). Rather low correlations

are the typical finding, so the Italian viewpoint tends to be that no one physiological measure can substitute as an indication of cognitive or emotional states and performances. A set of measures will always be necessary to capture the individual variance and to use it for practical predictions. The Italians are cautiously optimistic about the computerization of some of the testing of flight crew applicants, and are now updating their equipment.

R.J. Schneider (US Army, Heidelberg) had recently distributed a special questionnaire on Combat Stress Reactions (CSR) to a rather large sample of US Army respondents, and he gave IAMPS a preview of some results (they were not yet officially released for citation). The questionnaire elicited knowledge about the recognition and treatment of CSR states in ground-forces operation; it also inquired into the soldiers' attitudes about comrades who had experienced a CSR, had been treated for it, and had returned to the unit. Some of Schneider's results were rather dispiriting: not many officers and soldiers had accurate ideas about identifying and treating CSR cases, and it appears that "returned" cases will not readily be trusted to respond well under pressure. Fortunately, Schneider's analyses show that information alone can alleviate a large part of the treatment and acceptance problems. The best thing one can do to a CSR casualty, for instance, is to get him back into full duty as soon as possible (about 80% can achieve this within 3 days); but neither field commanders nor ordinary soldiers are aware of such simple facts.

Pereira and Jesuino (Portugal) have extended their work on stress. Their original research was on the marines who served in Portuguese Guinea in 1964-66. At that time, there was much guerilla warfare in the area, and Pereira (then a military physician) observed marines at close hand. A remarkable finding, which was reported at the Lisbon IAMPS in 1981, was that many marines who had experienced intermittent high-stress military activity are now, some 16 to 17 years later, in an irreversible state

that resembles moderate brain damage with emotional overtones. It also appeared that intermittent high stress was more likely to lead to such a state than was continuous low stress, as is routine in overseas barracks life. Furthermore, the effects of intermittent high stress were alleviated somewhat if morale and leadership conditions were good in the stressed unit.

While the Portuguese military is not now involved in dangerous overseas warfare, O.G. Pereira and J.C. Jesuino were able to study two kinds of marine duty battalions in 1981-82. The operational battalion (OB) has an extremely active training schedule; troops may, for example, suddenly be awakened for a long exercise just after going to sleep. The OB physical activity is often very strenuous too, as it involves boarding and debarking from small amphibious craft, manual movement of heavy equipment, and intensive marching schedules with full field pack. While they are not in true combat, OB marines do have their strenuous "Hell Week" training periods, and there is no doubt that real intermittent stress is experienced. In contrast, security and defense battalion (SDB) members have a regular work day, and they also enjoy regular rest, weekend leave, and recreation. From Fiedler's leadership theory, certain predictions can be made regarding ideal, or at least suitable, leaders in the two kinds of battalions. Proceeding from the theory, the Portuguese investigators did a detailed analysis of Leader Description Index scores, as obtained from the "followers."

A main Portuguese result, which both agrees with Fiedler's model and has practical leadership implications, is that in the OB high LPC (more sensitive) leaders seemed to lower the estimated stress in their subordinates, whereas in the service battalion the low LPC leaders tend to lower the stress. The results make sense: a low-LPC (task-oriented) leader may be just the person you want for getting routine work done with reasonable dispatch. But he probably cannot handle the task of "...making objectively more stressful situations

less anxiety arousing," as the OB leader has to do. There are many suggestive relations to be found in the data, but rather few conclusive ones. For example, the Portuguese researchers are looking for more evidence of the effect of LPC ratings on actual performance; the data now are mainly in the form of ratings about self and other people. The Portuguese work is a major application of the Fiedler model, and like all good tests of a complex model, it introduces further complexities of its own.

The stress research area seems to be showing reasonably convergent results from the different countries. Several US and UK establishments are scoring life stress and life support for military people and are finding that such scores (i.e., as derived from Sarason's questionnaires) can predict important performance behaviors. Among the behaviors are responses to stress and the ability to manage one's life apart from one's military duties. When the Portuguese find that "proper" leadership tends to ameliorate stress effects, they are calling for a new set of variables to be added to the usual military tradition of leaders and leadership. The research implications seem fairly clear: before we can predict whether a military unit will be effective or not, we have to know a good deal about what are the exact types of stress the men and women will be facing, what the "match" is between the stress situations and the available leaders, and whether all the people affected have the correct information about stress reactions and what can be done about them. Certainly the field is getting closer to developing a regression equation or other statistical function that will produce a useful prediction of stress susceptibility and recovery potential for military units.

At one evening discussion, some IAMPS members thought that it might be worthwhile to form a committee or two from IAMPS members, to have the committees do a state-of-the-art compilation on a particular issue now under examination by several countries, and to report

at the 1983 meeting on the way the issue seems to stand at present. Stress would certainly be a good topic for such a committee treatment. There were administrative questions, however, as to whether the IAMPS should try to imitate NATO or AGARD in forming such a committee structure. Nearly all IAMPS members receive NATO and AGARD reports regularly, and resources are too limited to be wasted on duplication of effort.

Administrative and Management Issues

Under this rubric, quite a variety of topics and projects were reported. King (US) reviewed some of the American contract work in productivity, inter-group relations, recruitment, and personnel turnover. The "Japanese secret" is now being studied intensively by US researchers, and several variables have been hypothesized to explain the remarkable achievements of Japanese organizations. One major contract study, sponsored by the US Navy, has been a parallel analysis of highly productive technological items in Japan and America. Though there are some obvious differences between Japan and the western countries, it is already clear that no one gimmick or technique can explain Japanese superiority. The "quality circle" idea, for example, is indeed widely and effectively employed in Japan, but western trials have shown that a quality circle plan does not necessarily or quickly produce marked improvements in western plants. For convenience, it may be helpful to think in terms of Ouchi's "Theory Z" construct; thus, firms like IBM and Xerox have some of the same features found in Mitsubishi Electric and Nissan Motors: long tenure for employees, sophisticated quality control and information systems, and consensual decision making that "fits" the company's and employees' long-term needs. It thus appears that the effective features of the Japanese industrial scene are not at all secret; rather, they have been shaped to function as a very complex and adaptive package.

The long-range planning process is a key element, and typically there is an

early government decision to make Japan a dominant force in a given industrial area, such as consumer electronics, optics, autos, or steel. To facilitate the process, Japanese industry is originally protected in its very large home market. During the protected period, Japan gains experience in the area, scales up modern plants for international production, develops high levels of quality control and efficiency, and a highly motivated work force. Then, when the industry no longer needs protection, it launches into an international marketing and cost-reduction effort, and the Japanese organization is set up to respond quickly and smoothly to market variables in different parts of the world. No one element, such as a recalcitrant union, is allowed to block the overall plan.

King commented on American research into goal setting, because setting specific and moderately difficult goals has proved to be one of the more dependable human motivators. One of the findings is that worker acceptance may be a decisive factor in the effectiveness of goals. There are a couple of US Navy projects on "life stressors," and already some interesting findings are coming out on the prediction of "mood" from recent life-event history; multiple r's in the 60's and 70's have been obtained.

Schneider (US Army, Europe) went over some of the studies on drug abuse in US soldier populations in West Germany. Much of this work was initiated a few years ago by LTCOL Larry Ingraham at the US Army Walter Reed Research Unit in Heidelberg, and it is only now being reported in the open literature. Some of the findings are truly remarkable. For instance, Ingraham's "Boys in the Barracks" analyses showed how drug use in the military can be conceived as one reaction to a socially bare and stressful barracks environment. Consider the new American soldier arriving in Germany for a few months or years of duty with an artillery unit. Many of the soldiers are under 21 years old, and they may have few strong interests, may display only

limited social skills, and may enjoy a fairly low status in both military and civilian environments. In all likelihood, their immediate environment in the barracks is notable for its high rotation rate and its tradition of superficial "Army buddy" friendships. Many new men are essentially excluded from married-soldier social life in Germany, the on-base bowling alleys and beer bars are not very attractive, and the pay of junior enlisted personnel does not permit much recreation on the civilian economy.

In this fairly difficult setting, Ingraham and Schneider note, there are several things the soldier drug-user community can provide the isolated new soldier. Participating in a drug-user group can occupy much of the soldier's time because the arrangements for purchase and use are complex and officially prohibited. There is also an "instant adversary" (the command or the police). The new user may gain instant access to an attractive off-base social system (German girl friends of American soldiers, German drug dealers, users, and soft hookers).

For a significant fraction of soldiers, then, the drug-use subculture can be conceived as a system that fills some social needs for people who find themselves in a marginal situation. Some inferences can be made immediately, but they are controversial. For instance, one might conclude that drug use in the military probably will continue unless soldiers' social needs are fulfilled in some other way. Pronouncements from commanders, and occasional "cracking down" campaigns cannot be expected to eliminate the problem.

As a young American officer in the Far East, Schneider himself did some research in Thailand in the early 1970s, using US high school students in Thailand as the population of interest (the students were nearly all dependents of American military and civilian government workers). At the time in Bangkok, nearly all drugs were easily purchased on the street. Drug usage was quite high among American students (in one 18-month period, nearly 1 percent of the

American student population died from heroin overdose), but it was quite low in Thai students of the same age. In reviewing the Bangkok scene from the point of view of American students, Schneider found many of the same social factors that Ingraham observed in his barracks soldiers in Germany: isolation, language and cultural differences, limited recreational alternatives, boredom, no strong friendship ties, and rapid turnover of peers. Perhaps the drug use operated as a social support mechanism in Bangkok, just as it did in Stuttgart.

Follow-up from the Walter Reed research in Germany showed that drug users in the American army were not necessarily drug addicts. US soldiers from the Heidelberg area could use hard drugs over the weekend in Stuttgart or Pforzheim, return to their units on Sunday night, and be perfectly effective soldiers all the next week in a field exercise. Drug use was generally opportunistic; if the soldiers were going to be involved in demanding work with dangerous equipment, they simply did not take drugs. A study of drug overdose deaths among soldiers showed that those who died were almost invariably rated "good soldiers" by their superiors. Such findings run counter to the stereotype of the "drug fiend" popularized by the media. Only a small fraction of drug users attend detoxification centers or are perceived as "problem soldiers."

The above analyses and results conflict with the official military party line on "enforcement," so there was much informal discussion about the proper interpretation of the findings across the IAMPS countries. Perhaps it would be fair to say that most attendees were convinced that the Walter Reed research is psychologically well founded. And for the few countries where military drug use is a problem, the Walter Reed psychological analysis provides some immediate remedial ideas. Because the approach comes from social psychology and not from law enforcement, psychiatry, military command practice, or medical control doctrine, it probably

will continue to be controversial.

M.H. Flach (West Germany) reviewed the different psychological approaches to understanding delinquent behavior. The medical model, for instance, views the delinquent soldier as a malfunctioning person; once the source of the malfunction is discovered, it can be treated or excised, and the person will no longer malfunction. The model is, of course, not very helpful in many instances of delinquency in the military, as the source of the malfunction is often neither evident nor subject to medical intervention.

Structural theories propose that much crime and other delinquencies stem from the strong desire for certain material goals, along with limited means for legitimately achieving them. Faced with this conflict, the individual can achieve a resolution through "criminal innovation"--that is, the discovery of effective, albeit proscribed, methods of attaining the goals. If the innovation is ineffective, then withdrawal, addiction, or extreme behavior such as violence or suicide may result. The social control perspective, perhaps best realized by Becker in his analyses of deviance, emphasizes how life can be organized around the facts of deviance, and how the official labels attached to deviant persons can have permanent consequences.

Flach's data, from several studies of the West German forces, suggest that a social psychological position may be the most suitable framework for the military psychologist. People have to cope with stressful events over a period of time; they cope in a variety of ways, some of which are not effective. Coping styles can be learned and shaped, and they often depend on the availability of social support. Flach's inventory scores are clearly related to suicidal tendencies; for example, "attempters" in the German armed forces had self-aggression and social support scores that were very different from those obtained from a matched group of normal controls. The attempters also claimed to have fewer "persons available" for social support in stressful situations. All the scores

are consistent with one another in the German sample, too: moderate correlations, in the 0.30 to 0.50 range, are the rule. Flach's data on suicide in military populations are perhaps the most complete in the world.

Godwin (Royal Navy, UK) stood back from the many "attitude surveys" that are done in military populations and tried to make sense of what really comes out of all the work. There are almost no surprises. He finds, for example, that senior and higher-ranking people tend to be more satisfied. Also, as one might well expect, a majority of service people report that they have problems with money and family expenses, and families do not like to see their naval husbands and fathers go to sea; again, rather banal discoveries. Perhaps attitude surveys are useful only when military management can do something immediate about the results. One positive illustration: many UK surveys reported that military people are constantly irritated by trivial rules that seem arbitrary. It was then easy to enumerate some of the unnecessary rules and change them when feasible; such efforts really cost nothing.

As the discussion showed, administrative issues are alive and interesting to all the IAMPS countries. The similarities among the approaches of the different representatives can be seen clearly in the social psychological theory preferred for explaining deviant behavior and in the trend toward validation of inventory scores of social support and related variables. Several countries, for instance, plan to try out the inventories developed by Flach, Sarason, and others. We also can expect more prediction studies as the items from the various inventories are analyzed in the different countries. There will almost certainly be sharing of "forms and norms" in the near future. Some attendees wished that an informal summary of all tests, inventories, and cut-off scores could be circulated; again, a small committee would have to be formed to get this done.

Women in the Armed Forces

There were four major presentations

on women in the armed forces; two were delivered by women active in the full integration of women into all military duties. Arts-Moens (Holland) opened the session with a brief history of women personnel in the Netherlands armed forces. As in many other countries, women had been in the Dutch services since World War II, but were organized into separate women's corps for the Army, Navy, and Air Force. In 1971, the treaty on the political rights of women was accepted by the Dutch parliament, and just this past year the separate women's services were legally abolished.

As part of the "Breakthrough" project to put women aboard a combat support ship, the *Zuiderkruis* was designated as the host ship, and reasonable conditions were established for a realistic sea trial starting in 1980. The provisions included privacy for women, but not total segregation into a "women's ghetto"; a reasonable number of women on board (about 15%, as it worked out); some women in all categories (officers, petty officers, ratings); regular and relatively long periods at sea; and work other than that traditionally done by women. Specific criteria were set up to establish whether the trial was successful; for example, a longitudinal series of structured interviews was used to find out whether the women perceived themselves as occupying a position equal to the males', and whether the men accepted the women as fully valued crew members.

From 60 female volunteers, 22 were finally selected to sail on the *Zuiderkruis*. Before boarding, there were several training sessions devoted to preparing the women and men for the shipboard experience. Many interesting issues were raised, and it was immediately clear that since it is still unusual for women to serve on combat ships, preparatory workshops are valuable and even necessary before sea trials.

Women did serve aboard the ship. Final evaluations are still under way in the Dutch Navy and may be ready for release at the 1983 IAMPS. Informal results were given for some of the

traditional problems and cliches that are often heard with respect to full integration of women. Physical strength was not a serious problem, and most women could perform their duties quite well; sometimes it even appeared that men will have to "unlearn" their tendencies to take over all physically strenuous work for the women. Endurance was initially a problem; Ms. Arts observed that at the start of the trial many women were not fully prepared for the "toughness" of the work aboard ship, and indeed they often went directly to their bunks to recuperate after a work shift. Casual observation indicated that while aboard ship, women probably slept more than the men. As to quarters and accommodation, during the cruise the men adjusted to their "loss" of space, and the women accepted their cramped spaces. About two-thirds of the women were generally positive about their shipboard experiences, though there were extremely negative responses toward certain types of duty (e.g., engine room and submarine). Some onboard sexual harassment occurred, with verbal harassment the most frequent type reported (officially, men and women were prohibited from touching each other aboard ship). The women appeared rather resigned to this abuse and had not developed adequate strategies to cope with it. On the whole, the Dutch experience was certainly positive enough to justify further full-integration efforts.

The talk by Schlüter (Denmark) reviewed her own interesting experiences as one of the first women aboard Danish Navy ships. As Schlüter quickly perceived, an "active woman" image is regarded as desirable by Navy men, so she took great trouble to show that she could do practically anything that the men could do aboard ship. The work included extremely uncomfortable and strenuous naval chores that would challenge any person--for instance, hydrographic work from a small open dinghy in a very cold sea. (The "energetic activist" behaviors are quite persistent when well learned; some attendees noted that when certain train-

ing equipment was being demonstrated at the IAMPS meeting, Ms. Schlüter was the first one who stepped forward as a volunteer subject.) One could say that the moderately positive Danish experience was somewhat parallel to the Dutch one, though so far it is perhaps less formal in conception and evaluation. There are obvious selection issues that should be ventilated and researched soon: if an active-aggressive performance stance is desirable for women in combat support units, then it should be "tested and trained" all the way through the selection procedure. Both Schlüter and Arts believe that this "active" viewpoint can be learned readily and effectively assumed.

M. Stracca (Italy) also started his contribution with a historical remark; he noted the strong socio-religious tradition of women as spouses and mothers and the patriarchal mentality that persists in the Mediterranean countries. Still, social changes do occur, and the Italian Ministry of Defense passed a "women's act" last year. Stracca's empirical work was based on a questionnaire he gave to 200 cadets at the Italian Naval Academy; his form addressed several issues regarding the introduction of women into the services and into the service academies. The overall result was quite favorable, with about three-quarters of cadets favoring "full admission" of women to the Armed Forces, and more than half approving the admission of women into the academies and combat units. As half of Stracca's sample was taken from senior (fourth-year) cadets and half from junior members (2 months' academy service), he was able to compare the reactions of the two sub-samples. The older cadets "...are more trustful than the younger ones of the capability of military institutions to hold the new impact." Stracca believes that several years of maturity brings forth a more "...positive adult," and also "a more free, and tolerant personality." All those concerned with women in the military will be glad to see the Italian results, which are among the first to be reported from the Mediterranean countries.

Resch (Canada) updated the Canadian project for employment of women in previously all-male military environments. The major Canadian trial started 3 years ago and will conclude in 1984, with final reports and recommendations to be delivered in 1985. There are five separate environments:

- Land (service battalion and Field Ambulance Unit in West Germany)
- Sea (diving tender)
- Air (female pilots, navigators, flight engineers)
- Isolation (Arctic Circle posting)
- Arctic (Winter combat exercises)

As in the Dutch case, a significant proportion (some 10 to 15%) of the people in the Canadian trial units are women who volunteered. Right of refusal to serve as posted was granted to all women in the trial.

With the trials in the five environments now at different stages, it is not yet possible to foresee exactly the final recommendations. One clear finding is the great complexity of introducing women into land operations. The circumstances of being in or near combat zones and the lack of privacy for both sexes are intrinsic features of the ground environment. The Canadian scheme of using direct observation, unit performance, records, questionnaires, and interviews has been retained and extended (for a basic description, see N.A. Bond, *17th International Symposium on Applied Military Psychology*, Conference Report C-3-81 [US Office of Naval Research, London, 1981]).

Resch made a very interesting comparison of the Canadian and Netherlands Navy results; for example, in both countries male attitudes toward integration became more favorable over a 1-year period, and both sexes seemed to adapt readily. When Canadian experience is compared with that of the US Army, there are also many similarities; women are clearly able to do the work, and there

is no impairment of unit effectiveness, at least when the proportion of women is on the order of 10 or 20 percent. Women are quite proficient in the trade aspects of military work--repairing electronics equipment, for example--but they were rated lower than men in tactical aspects. Navy integration of women appears to be easier and more advanced than does the use of women in ground forces.

The overall IAMPS stance from several countries is a cautiously positive approach to full integration of women in the services. At all levels and in all branches of the military there is a hard core of male opposition to women; even when women are clearly proficient in high-status roles (e.g., transport aircraft pilot), the opposition is found. Also, women have not yet been in combat, and the popular reaction to injured and dead women military personnel would be one of revulsion. (Israel has nearly stopped allowing its military women in combat zones, for example.) But we can almost certainly expect more trials, and with major studies like the Canadian effort to provide a sound basis for planning, the most likely outcome for the next decade will be gradual further integration.

Information Processing

Bond (US) described some of the recent American research on decision-making and decision aiding. One trend is a slowdown in the production of extremely large command-control systems. There have been at least a dozen major projects over the past few years, and the products often looked much alike: a large mainframe computer driving several tactical and resource displays, large darkened rooms with projected situation plots, command consoles, and people-intensive communications systems. Among the reasons for the slowdown in new, big systems are the high cost, long lead time, and slow "learning curve"; apparently many things have to be rediscovered on each new system. Also, big command, control, and communication systems are essentially management tools, and after a couple of decades and

billions of dollars, most of the main tactical plotting and display problems have been fairly well solved. An officer can call up different tactical and resource displays at the flick of a touch panel.

Dialogue between computers and humans is a booming field of research. Terminal and computer designers are finally realizing that many users are computer-naïve, and that much work needs to be done on user-friendly languages and on other aspects of man-computer interaction. Various hierarchical schemes are being examined, as are voice-computer interfaces. There are major projects moving toward truly adaptive displays that can, for example, respond to an operator's competence level. A few years ago, "flexibility" was a buzzword. But one contract effort has shown that if you give a user too much flexibility, performance declines--apparently because the user must put more information into the machine and must get more detailed feedback to keep things going.

In America, as in Europe, there are many miniature decision-aiding packages, often designed for a special function. The systems typically include a computer the size of a portable typewriter, a few discs, and supporting manuals. The analyst takes his little computer to the scene. One well-known application of the concept is in the diagnosis of plant diseases. One or a few specialists with such a system can solve most plant disease problems rather quickly. It remains to be seen whether such decision-aid packages will find wide use in the military (they already seem to be doing so in automated testing and trouble-shooting). In the aiding research now being supported by the US Navy, much attention is being given to assessing the reliability of data sources, the operator workload (as in air ASW), and reconciliation of disparate tactical estimates (as in submarine operations).

Two British presentations concerned practical targeting problems. Burnett (UK) studied the silhouettes of a dozen military aircraft and performed a multi-

dimensional scaling analysis on their features. A stable and reasonably simple two-dimensional structure was obtained over the data set. Burnett went on to train and test skilled observers; after surprisingly little controlled practice, it took about a second to classify planes in the set, and his subjects were successful, with about 90% correctly classified. To the psychologist, perhaps the most interesting thing about this work is the careful attention given to the underlying theory of human performance; the approach is more than just a feature-analysis training scheme.

A "portable" gunnery simulator was demonstrated by Segal (UK). The entire apparatus was brought to the IAMPS in the back of a small car, so it was plainly a stand-alone device. The simulator had face validity and shows promise of substantial savings in training time. Also, this kind of "cheap" simulation gives the training analyst more access to simulation equipment for evaluation and research studies. Some of the most expensive and complex aircraft simulators in the world have never been evaluated. The usual argument is that with only one or a few expensive simulators, operational training is so critical that "...all that research stuff can wait." But small, complex training devices such as the one Segal showed will be widely available, so the actual task elements can be analyzed and taught in something approaching a true adaptive fashion.

Steege (W. Germany) outlined the Bonn experimental project, which is installing and evaluating a computer-assisted test station in Bad Gotesberg. In addition to the standard American software packages from Lord, Weiss, and others, the Germans have psychometrics models of their own to check out. All the indications are that savings in testing time of 30 to 50% can be realized, and the computer system will provide hard-copy test results for later analysis. The Luftwaffe testing centers at Furstenfeldbruck now use "quality" scores on some of their apparatus tests, but the scoring procedures are often of

lower reliability and probably should be automated and researched soon.

Selection and Prediction

Steege's paper on officer selection and education in the West German forces was not so much a technical report as a thoughtful appraisal of certain intellectual trends in the society. It has been a Germany cliché for many years, and eventually became an official policy, that new officers should be educated "generally," which may be interpreted as a decision to provide heavy doses of liberal education in "officer universities" and in training programs. Everybody agrees with the policy, it seems; yet it turns out that German officer education actually is quite scientific and technical, with an extremely heavy student workload. For instance, at the two military universities in Munich and Hamburg, students are expected to complete the ordinary 4-year engineering course in 3 years. So the reality is that although much has been made of the "new" educational policy for officers, many graduates are still trained as very specialized engineering people.

There are, of course, continuing psychological studies and some revamping of the present West German selection procedures (psychometric battery, leaderless and structured interviews, and the usual assessment-center supplementary tasks and observations). But Steege's paper is a pointed reminder of certain basic ambiguities that Western democracies now face with respect to the military. It is perhaps sobering for the psychologist to realize that improvement of selection devices and screening procedures cannot really solve the cultural issues; yet it is also encouraging to see that they can be addressed seriously within the military services. A generation ago, such questions would not even have been considered in the officer corps of major western countries, which obtained their new manpower from a small cadre of elite cadet schools.

G. Walker-Smith and N. Brandler (UK) presented a complete summary of

their RAF pilot selection battery. Psychometrically, the project is somewhat unusual in its use of a logistic prediction function for combining scores. The cross-validation design included large holdout and validation samples, and there was relatively little shrinkage when the fitted function was applied to a new data set. The careful British study is a good example of cross-validation in military personnel work, and would serve well as a textbook model. Since the criterion of success was passing training courses, there are not yet any "ultimate" criterion indexes, and perhaps there never will be. There are many subsidiary indications, however, of generally high-quality flying performance in the RAF.

Walker-Smith and Brandler found that measures from both selection and training data were necessary for "best predictions"; the finding is consistent with the idea of successive "sorting out" stages in a military flying career. Pushed a little farther, "selection" can be conceived as a decision tree with several nodes. Perhaps the next step is to start defining an entire personnel system in a discrete tree format and to estimate the probabilities and utilities at each decision node. Given such information, decision-theory methods could be applied to the system. The material already in the RAF data banks goes some distance toward such a system.

Progress Reports

Some attendees reported informally on military psychology in their home countries; the work often had novel approaches, constraints, and results. Böhrrer (Belgium), for instance, described a complex logic-puzzle test he had been investigating; he also told about the unusual requirements that Belgian political forces impose on the management of military conscripts and volunteers--for example, political considerations demand that military people be stationed close to their homes. Bech (Denmark) gave some information about the Danish Defence Center for Leadership. For officer cadets and others, the center gives regular courses

that are apparently based on scientific studies of leadership instead of the "inspirational" literature derived from military history. Among the teaching units are segments on leaderless group discussion and on leadership values and norms. The center is conducting research on such matters and expects to discover what the really critical variables are.

Veron (France) presented block diagrams of the French Air Force's selection system. He also showed moderately high correlations (in the 60s) between his test batteries and success in basic flight and fighter schools. Relatively high rejection rates occur in the early stages of the selection process. Veron has some extremely interesting data regarding the "post-diction" of accidents in the French Air Force; the information has not been released for wide distribution, but the data favor the idea that one can indeed predict those most likely to be killed in training accidents. The findings seem to deserve cross-validation on other samples and in other countries.

Chatigny (Canada) is a psychologist in a military college; he presented a complete set of outlines for his course. The organization resembles that found in personnel management textbooks, but the military environment brings the material "down to earth," literary and inspirational material is eschewed, and the scientific literature serves as the basis for the course. One informal query was: how much of the traditional theory on leadership and personnel management has been proved to be valid in the real military setting?

Informal comments about various programs were given throughout the meeting; Nurmi (Finland), Rock (US Army, Heidelberg) and Dean (US Navy) were among the contributors. Rock, for instance, presented an analysis concerning the Dragon antitank missile training program and offered hypotheses about ways to improve trainees' learning (the live rounds are very expensive and are seldom used in training, so most soldiers never fire the weapon). Dean

commented on the personnel research in the US Navy and mentioned its dependence on a shifting challenge-and-response pattern among universities, Navy laboratories, and operating units in the fleet.

Business Meeting

Only two items of business were raised on the last day of IAMPS. One concerned the possibility of inviting

South Africa to join IAMPS at future meetings. As an informal organization, IAMPS can choose whom it invites to its meetings, and a vote was taken on South Africa. The secret vote was in favor, so the South African Embassy has been notified and has already responded.

The second item concerned the site of the 19th IAMPS; it will be in Scandinavia, either in Sweden or Denmark.

APPENDIX

Participants in the 18th International Symposium on Applied Military Psychology,

21-15 June 1982

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